

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Wolfe, *et al.* ) Title: Electric motor  
                                  )  
Serial No.: 10/662,683       ) Group Art Unit: 3729  
                                  )  
Filed: September 15, 2003     ) Examiner: T.D. Phan

APPEAL REPLY BRIEF

*MS Appeal Brief – Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450*

Sir:

This reply brief is filed in response to the March 18, 2008 answering brief of the examiner. This reply does not include any new amendment, affidavit, or evidence.

Pages 7-9 of the examiner's brief include three points directed to the rejection of claim 11. The rejection of that claim is based on the examiner's belief that the claimed invention is an obvious combination of the teachings from two references:

- the teaching from the Sunaga '770 patent of a motor with a magnet wire; and
- the teaching from the Matsuoka *et al.* '666 patent of a device that has a fuse and can be connected to an existing wire in an automobile when the current-protection needs in the system change; for example, when electric components in the automobile are replaced.

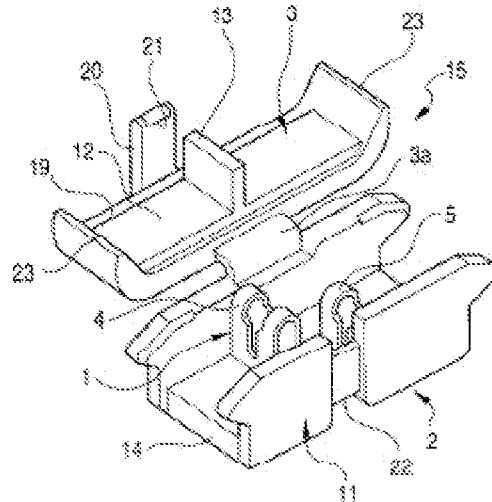
Each of the examiner's three points will be addressed in turn.

1) Whether extra wire is required to combine the references

The examiner's first argument is that no extra wire would be needed to install the Matsuoka '666 device in the Sunaga '770 motor. While this may be true, it does not make the claimed invention obvious.

The applicants' position is that the Sunaga '770 patent already discloses a fuse, and it would not be obvious to replace that fuse with the Matsuoka '666 device. The Sunaga '770 patent shows a fuse in a particular location: between two circuit boards. That fuse has one end that is welded directly to one circuit board and another end that is soldered directly to the other circuit board. (Col. 1, lines 65-67.) The patent teaches that this particular type of fuse, attached in this particular way in this particular position, offers distinct advantages. See, for example, col. 7, lines 4-10 (describing the advantage of that location) and col. 7, lines 42-53 (describing the advantage of welding one end of the fuse to one of the circuit boards).

The Matsuoka '666 device, seen on the right, is designed to be pressed onto a wire. It has no metal leads that can be welded or soldered to a circuit board. So, the apparent way to attach the Matsuoka '666 device in the recommended location on the Sunaga '770 motor would be to add a wire between the two circuit boards, then attach the Matsuoka '666 device onto that wire. As explained in the applicants' opening brief, it would not have been obvious to actually do this.



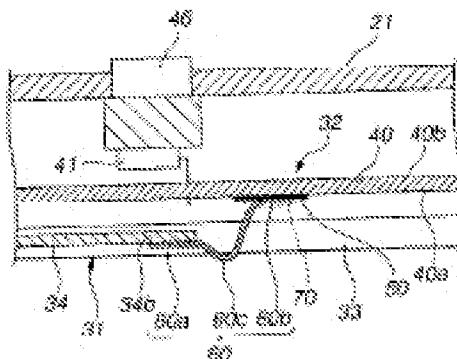
Apparently, the examiner contends that one could also attach the Matsuoka device in another way. Specifically, it appears that the examiner is suggesting that the fuse and the terminals 4 and 5 from the Matsuoka device could be mounted between the circuit boards, then a wire could be stretched between the terminals and cut:

[A]n ordinary skill in the art such as a technician understands that the '666 teaches an improved, simple and small fuse installation at an existing circuit when parts or new wire exceed current protection device (Figs. 3 & 4, item 1; Col. 1, lines 33-38; lines 52-

55); with the ‘770 when the technician needs extra protection for the winding coils (Fig. 1, item 7) and new switch (45) which are interconnected through the printed circuit board or PCB (40) and terminal (48), the technician just needs to mount a small fuse on the printed circuit board (40) near the terminal (48), disconnects the excess magnetic wire of the winding coil (7) that is connected to the terminal and reconnects that magnetic wire directly across the fuse to a PCB solder spot then severing the wire across the fuse...

Examiner’s brief at p. 7. This arrangement would not have been obvious.

First, it would not be obvious to mount the Matsuoka device onto a circuit board. Part of the advantage of the Sunaga ‘770 patent (60 below) is that the fuse provides a thermal pathway



from the circuit board 40. See col. 7, lines 11-15.

The housing on the Matsuoka ‘666 device is clearly an insulator. If the housing were mounted onto the circuit board, it would not provide the same thermal pathway. To provide a thermal pathway, the housing of the Matsuoka device would need to be removed.

However, the housing of the Matsuoka ‘666 device is an important part of the device. It both arranges the wire in a bent configuration (col. 4, lines 15-17) and presses the cut ends of the wire downward (col. 4, lines 36-38): key advantages of the device. It took ingenuity on the part of the examiner to see that stripping away the housing of the Matsuoka ‘666 device – thus making it no longer useful for its intended automobile aftermarket application – might leave a fuse that could be incorporated into the Sunaga ‘770 device. It would have taken even more ingenuity for one of ordinary skill in the art to have seen that at the time that the claimed invention was made.

2) The Matsuoka ‘666 patent alone does not suggest all the elements of the claim

The examiner’s second argument is that the Matsuoka ‘666 patent alone teaches the three “main” steps of the invention, which he characterizes as: laying a wire across terminals of a fuse, connecting the end of the wire to a switch, and then cutting the wire between the terminals.

Claim 11 is directed to a method for assembling a motor – something that Matsuoka does not address – and the first element of claim 11 requires the fuse to be part of a winding board:

winding a first magnet wire about a first lug in a winding board and a first protrusion in a stator, the winding board being disposed on the stator and including a switch having at least an internal terminal, and a fuse having an input terminal and an exit terminal;

As discussed above, the Matsuoka ‘666 device is specifically configured for installing a fuse into an existing electrical system when components in that system are modified from their initial design configurations. There is no disclosure or suggestion of mounting that device onto a winding board during the original assembly of a motor or similar product. Mounting the Matsuoka ‘666 device onto a winding board during the assembly of a motor would have taken the device beyond its known field of use.

3) KSR guidelines

The examiner contends that *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_\_\_ (2007) supports a finding of obviousness. As explained above, the examiner’s arguments appear to depend upon assumptions that one of ordinary skill in the art would modify the very aspects of the Sunaga ‘770 motor and of the Matsuoka ‘666 device that make those products work. The arguments also assume that it would have been obvious to use the Matsuoka device in a setting where its use was never contemplated.

In *KSR*, the Court explained that obviousness is the combination of old elements in a predictable way, not in an unexpected way:

[A] court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

The KSR Court evaluated the obviousness of a device used on automobile gas pedals.

The Court began by noting that the marketplace created a strong incentive to convert mechanical pedals to electronic pedals, and that the prior art taught a number of ways to do that.

Here, the comparable issue is whether the marketplace created an incentive to improve the method of assembling electric motors. The examiner is not relying on any art directed to ways to improve that method.

The Court then explained that the “proper question” was to ask whether a pedal designer of ordinary skill, facing the wide range of needs created by developments in the field of endeavor, would have seen a benefit to upgrading the type of gas pedal shown in the primary reference by adding a sensor.

Here, the comparable question is whether a motor designer of ordinary skill, facing the range of needs in the field of improving the method of assembling electric motors, would have seen a benefit to “upgrading” the process for manufacturing the Sunaga ‘770 device by using a Matsuoka ‘666 fuse during the original assembly of the motor.

For three reasons, the answer is “no.” First, there is no showing that those of ordinary skill in the art would have seen any deficiency in the method of assembling the Sunaga ‘770 device. Second, based on the express teachings of the Sunaga and Matsuoka patents, those of ordinary skill in the art would have thought that any of the apparent ways to add the Matsuoka device to the Sunaga motor (adding a wire between the circuit boards, moving the fuse to a different location, or even mounting the Matsuoka housing to the circuit board) would have made the device worse, not better. Third, it would have taken ingenuity to take a fuse

specifically engineered for aftermarket installation, modify it in ways that would make it no longer practical for that purpose, and then use it in the original assembly of a motor.

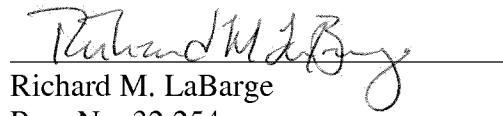
Thus, *KSR* does not support a rejection of the claim.

The examiner not having established obviousness, the applicants urge that the refusal should be reversed.

Respectfully submitted,

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